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ABSTRACT

The goal of the study described in this paper was to examine the role of possible selves in perceptions of competence and in self-regulation. The study investigated whether possible selves, or individuals' perception of what they might be like in the future, exert their influence on self-efficacy and self relation via the dimensions associated with possible selves. It was expected that the salience of "hoped-for" and "feared" possible selves should be more closely aligned to expectancies, whereas the importance assigned to hoped-for and feared possible selves should be more closely related to behavior. Path analyses performed on data collected from 287 seventh-grade students generally supported this premise, although the pattern of effects differed slightly across the four academic domains examined (mathematics, English, science, and social studies). The results suggest that possible selves can add to the understanding of student motivation and self-regulation. (Contains 17 references.) (Author/ND)

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The role of possible selves in adolescents' perceived competence and self-regulation

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Abstract

The goal of this paper was to examine the role of possible selves in perceptions of competence and in self-regulation. We propose that possible selves exert their influence on self-efficacy and self relation via the dimensions associated with possible selves. That is, the salience of "hoped-for" and "feared" possible selves should be more closely aligned to expectancies, whereas the importance assigned to hoped-for and feared possible selves should be more closely related to behavior. Path analyses performed on data collected from 287 seventh grade children generally supported this premise, although the pattern of effects differed slightly across the four academic domains examined (mathematics, English, science, and social studies). The results suggest that possible selves can add to our understanding of student motivation and self-regulation.

The role of possible selves in adolescents' perceived competence and self-regulation

Possible selves, or individuals' conceptions of what they might be like in the future, have been offered as an integral aspect of self-regulation (Garcia & Pintrich, 1994; Markus, Cross, & Wurf, 1990; Markus & Nurius, 1986). These representations of the self are considered to be an important part of the human motivational system, serving two crucial functions: organizing self-relevant information and acting as goals to approach or to avoid. Our intent here is to illustrate these two functions by discussing how possible selves give rise to a sense of competence, and how possible selves assist in providing the impetus for self-regulation.

Defining self-schemas and possible selves

In the past, researchers tended to view self-concept as a global, relatively stable entity, or as a generalized, average view of the self (Markus & Wurf, 1987). In contrast, more recent formulations of the self-concept have incorporated advances made in cognitive psychology, and portray the self-concept as a constellation of cognitive schemas, or networks of knowledge about the self (Markus and her colleagues). Self-schemas can therefore be defined as cognitive-affective representations of ourselves in different contexts. As such, we may characterize self-schemas according to four dimensions: affect; value; instrumentality; and temporal sign.

The affect dimension refers to the fact that we hold both positive and negative beliefs about ourselves. We have possible selves which we hope to attain, and possible selves which we fear becoming. The value dimension addresses the notion that despite the multifaceted nature of the self-concept, certain selves are more central, carry more import, and are chronically accessible to working memory. One's efficacy beliefs regarding the maintenance of positive selves and the modification of negative selves are the focus of the instrumentality dimension. Finally, the temporal sign dimension refers to the idea that we possess not only conceptions of ourselves now, but also of what we have been,

and what we may become (Garcia & Pintrich, 1994). Possible selves build in a telic component to self-concept, extending beliefs about the self from simply "who I am now" to "who I might become."

Since individuals hold a multiplicity of self-schemas, and indeed, different individuals may even hold the same self-schemas, we contend that differences between persons in perceived competence and in self-regulation arise from variations in these dimensions. For example, two persons may possess the "successful" possible self, yet differ in the importance attached to attaining that self (value dimension), or in the efficacy for attaining that possible self (instrumentality dimension), or even in the perceived salience, or imminence of that possible self (temporal sign dimension, cf. future time perspective, Nuttin, 1985). Accordingly, the goal of this study is to provide evidence for how these dimensions of self-schemas give rise to perceived competence and self-regulated behavior.

Possible selves, perceived competence, and self-regulation

As specific representations of the self in the future, possible selves give rise to feelings of competence in by energizing relevant action-specific, instrumental scripts and schemas. That is, the process of anticipating the future (by using imagery or engaging in mental practice) seems to engender perceptions of competence by priming the information-processing system to access data consistent with the self-schemas active in working memory (Markus et al., 1990). Images of the possible self, along with images of or semantic information about attaining that self make the end state appear more likely, therefore promoting a sense of competence, efficacy, or control, in the case of positive possible selves, or a sense of incompetence, ineffectuality, or lack of control, in the case of negative possible selves (Garcia & Pintrich, 1994; Markus et al., 1990). Since individuals may possess a large number of possible selves, we propose that perceptions of competence should be most closely linked to possible selves viewed as high in salience. The instrumentality and temporal sign dimensions of self-schemas should be most closely related to this perception of salience: possible selves which are seen as more likely to be attained or imminent ought to be linked more strongly to perceptions of competence (or incompetence) by virtue of the decreased psychological distance between "me now" and "me in the future."

Possible selves not only impact upon expectancies, they affect behavior as well. A crucial function of possible selves is that they serve as incentives for behavior, creating personalized goals which the individual is motivated to approach ("hoped-for" possible selves) or to avoid ("feared" possible selves) (Garcia & Pintrich, 1994; Markus & Nurius, 1986). Previous work has shown that having a particular possible self active within working memory helps to prime other relevant schemas such as scripts for various study strategies, or beliefs regarding one's value for the task, or concerns about performance, thus helping to draw parameters around achievement-related behavior (Garcia & Pintrich, 1994; Markus et al., 1990; Ruvulo & Markus, 1992). Indeed, self-schemas (both present selves and possible selves) have been linked to student motivation, study strategies, and performance (Garcia, 1993; Garcia & Pintrich, 1993; Pintrich, Garcia, & De Groot, 1994; Ruvulo & Markus, 1992). However,

as discussed previously, not all possible selves carry the same weight. We possess many self-schemas, some of which are more central to ourselves than others. We offer the following proposition: that the effect of these various self-conceptions upon behavior differ according to the importance we assign to the possible selves. For example, an individual may possess a "failure" possible self. She may perceive this self has highly unlikely, and thus her perceived competence may be high (as discussed above). But unless she values that possible self, we are unlikely to find any effects of that possible self on her behavior. In order for that possible self to exert any influence on her behavior, she must attach some degree of importance to-that self: importance helps to provide the impetus for self-regulation. Given this reasoning, possible selves which are rated as highly important (to attain or to avoid) ought to be most clearly linked to self-regulation.

Of course, the importance of possible selves is not the only impetus for self-regulation. There is a wealth of research demonstrating the strong effect of perceived competence in a domain on self-regulation (Schunk, 1990; Zimmerman, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992). We do not dispute the fact that self-efficacy beliefs trigger self-regulation; what we are suggesting here is that the importance of attaining (or avoiding) possible selves, in addition to perceptions of competence, motivate the individual to regulate his/her actions. That is, possible selves reflect long-range goals for the individual, whereas self-efficacy beliefs represent specific outcome expectancies.

Accordingly, the research questions to be addressed in this study are as follows. First, how do possible selves affect perceptions of competence? Second, how do possible selves affect behavior? To address the first question, we tested how the dimensions of possible selves differentially impacted upon self-efficacy. To answer the second question, we examined the relations between the possible selves dimensions and students' self-regulation in their classes. Since self-schemas are proposed to be driven by the situational context, the measures taken and the analyses done were domain-specific.

Method

Subjects

Participants were the entire seventh grade (n = 287) of a middle school located in a working-class suburb of a midwestern city. Girls comprised 49% of the sample (n = 141), and the mean age was 12.1 years.

Measures

Possible selves were assessed using the "What I Could Be Like" questionnaire. This instrument asks students to project themselves five years into the future, instructing them to think about what they could be like in high school. Self-efficacy for learning and self-regulation strategies were measured using two subscales from the junior high school version of the Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich & De Groot, 1990). Both of these surveys are self-report, Likert-scaled instruments, with items scaled from 1 (low) to 7 (high). All the survey questions were domain-specific,

and responses to items directed toward four academic subject areas (mathematics, English, science, and social studies) are presented here. Possible selves were assessed in October 1992; motivation and use of learning strategies were measured in January 1993. Descriptive statistics and coefficient alphas are reported in Table 1.

Self-schemas. In line with the model presented above, we asked students to rate domain-specific descriptors on likelihood, or the salience of each descriptor ("How likely is it that this will describe you five years from now?"), importance ("How important is the possibility of becoming this way to you?"), and efficacy, or sense of instrumentality regarding that descriptor ("How sure are you that you can do things to *become* this way OR *avoid becoming* this way?"). Two descriptors were offered as positive possible selves: "Has high grades in (subject domain) class" and "Understands everything that (subject domain) teacher explains." Three descriptors were offered as negative possible selves: "Needs help from classmates in (subject domain)" "Has a hard time finishing (subject domain) homework assignments" and "Does not know the answer when called on by (subject domain) teacher." Students' responses regarding likelihood for the two positive descriptors were summed and averaged to measure the likelihood of the positive possible self-schema for that domain. Correspondingly, responses to the likelihood of the three negative descriptors were summed and averaged to measure the likelihood of the negative possible self-schema for that domain. The same procedures were done for the importance and efficacy ratings. Internal consistency measures for the three dimensions of the positive and negative possible selves were acceptable, ranging from .61 to .87 (with the average Cronbach's alpha = .74, see Table 1). Note: for ease of reference, positive possible selves will also be discussed as "good (subject domain) student" possible selves and negative possible selves will also be referred to as "poor (subject domain) student" possible selves.

Self-efficacy and self-regulation strategies. The measure of self-efficacy used here taps into students' expectancies for success in an academic domain, as well as students' ratings of their competence in that domain, relative to their classmates (e.g., "I am sure I can do an excellent job on the problems and tasks assigned for this class" "Compared with other students in this class I think I know a great deal about the subject"). Self-regulatory strategies, as measured here, refer to processes which involve metacognitive regulation of cognition such as monitoring of understanding and planning one's study agenda as well as to strategies related to managing one's effort (e.g., "I ask myself questions to make sure I know the material I have been studying for in this class" "Even when study materials for this class are dull and uninteresting, I keep working until I finish"). Cronbach alphas for the domain-specific self-efficacy and self-regulation strategies scales were acceptable, ranging from .66 to .87 (see Table 1).

Analyses

To check for possible multicollinearity between variables, we first computed the zero-order correlations between the positive and negative possible self-schema dimensions (likelihood,

importance, and efficacy), self-efficacy for the domain, and use of self-regulatory strategies for the domain. We then ran four path analyses, using the dimensions of the positive and negative possible selves as predictors of self-efficacy in a domain, then using the dimensions of the possible selves and self-efficacy as predictors of the use of self-regulatory strategies in a domain. The causal flow depicted within these path models corresponded to both the theoretical model discussed above and to the design of the study (recall that possible selves were assessed in October 1992 and self-efficacy and self-regulation strategies were measured in January 1993).

Results

Correlations between constructs

We found no strong multicollinearity between our variables, which provides evidence that these constructs are distinct and not mere proxies for one another (see Table 2). For example, ratings of the likelihood of a positive possible self are not mirror reflections of ratings of the likelihood of a negative possible self; neither can the rating of one's self-efficacy to attain a positive self (or avoid a negative self) be equated to one's self-efficacy in a domain. Altogether, the pattern of relationships between the variables were as expected: save for the perceived likelihood of a negative possible self, correlations were, in general, in the positive direction.

Path model for mathematics

All six self-schema components (the likelihood, importance, and efficacy for the positive possible math self-schema and the likelihood, importance, and efficacy for the negative possible math self-schema) were entered to predict self-efficacy in mathematics in the first step of this model. The only significant predictor of self-efficacy in mathematics was the perceived likelihood of the good math student possible self, although the perceived likelihood of the bad math student possible self was marginally significant (see Figure 1). That is, the greater the perceived likelihood of the good math student possible self, the greater the self-efficacy in math; the greater the perceived likelihood of the poor math student possible self, the lower the self-efficacy in math. While only a modest amount of variance in self-efficacy in mathematics can be attributed to possible selves ($R^2 = .08$), this analysis does show that the perceived likelihood of the good math student possible self explains a unique portion of the variance in perceived mathematics competence.

The six possible selves variables and self-efficacy were then used to predict use of self-regulation strategies in this domain. Self-efficacy and the importance of attaining the good math student possible self were the only significant predictors of self-regulation ($R^2 = .31$). It appears that one's use of self-regulatory strategies in math is a function of one's perceived competence for mathematics as well as of the importance one places on becoming a good math student. Although these two were the only variables to have significant direct effects on the use of self-regulation strategies, the perceived likelihood of the good math student possible self does exert a weak indirect effect on

self-regulation through its effect on self-efficacy (multiplying the unstandardized regression coefficients for these two paths together produces a b for the indirect effect of .07).

Path model for English

The parallel analyses for the English domain showed that the perceived likelihood of the good English student possible self and one's efficacy for avoiding the poor English student possible self significantly predicted self-efficacy in English (R^2 = .13, see Figure 2). That is, the belief that there is a high probability of being a good student in this domain in high school is tied to one's self-efficacy for this domain at the present; one's sense of instrumentality for avoiding becoming a poor student in this domain is also related to one's present sense of competence in English. The likelihood of the poor English student possible self, although marginally significant, did predict lower levels of self-efficacy in this domain (beta = -.12). As proposed earlier, the image of oneself as a poor student can promote a sense of inadequacy.

As in the model for mathematics, the strongest predictor of self-regulation in English was self-efficacy in English. In contrast to the findings for the math domain, it was one's efficacy for attaining the good English student possible self, not importance, that had a direct effect on one's use of self-regulation strategies in English (beta = .13; R^2 for the model = .33). For this case, the greater one's perceived competence in English, the greater the degree of self-regulation; the greater one's efficacy to attain the good English student possible self, the greater the level of self-regulation (above and beyond the effect of self-efficacy in English). Again, because both the likelihood of the good English student possible self and efficacy for avoiding the poor English student possible self significantly predicted self-efficacy, these variables had weak indirect effects on self-regulation (bs were .09 and .06, respectively).

Path model for science

The only significant predictor of self-efficacy in the science domain was the perceived likelihood of the poor science student possible self: the greater the perceived likelihood of the poor science student possible self, the lower the self-efficacy (beta = -.16; R^2 = .13 = .12, see Figure 3). As expected, the perceived imminence of a negative possible self was related to lower levels of perceived competence. Ratings of the likelihood of the good science student possible self, the importance of attaining the good science student possible self, and efficacy for avoiding the poor science student self did positively predict self-efficacy in science, albeit at α = .10, not at the conventional .05 level.

Similar to the findings in the English domain, the only significant predictors of self-regulatory strategies in science were one's self-efficacy in science and one's sense of instrumentality for attaining the good science student possible self (respective betas = .46 and .17, total R^2 = .29). The likelihood of the poor science student possible self had a slight indirect effect upon self-regulation in science (b = -.06).

Path model for social studies

It is interesting to note that for this particular domain, self-efficacy is affected more strongly by variables related to the negative possible self, rather than to the positive possible self (R^2 = .15, see Figure 4). Self-efficacy in social studies was significantly predicted by the importance of attaining the good social studies student possible self (beta = .18), the likelihood of the poor social studies student possible self (beta = -.16), and efficacy for avoiding the poor social studies student possible self (beta = .20). That is, high levels of self-efficacy in social studies is linked to: attaching high importance to the possibility of becoming a good social studies student; perceiving the possibility of becoming a poor social studies student as low; and reporting high levels of efficacy for avoiding becoming a poor student in this domain.

As in the mathematics domain, the importance of attaining the good social studies student possible self had a positive effect on self-regulation (beta = .17), above and beyond the effects of self-efficacy in social studies (beta = .39, total R^2 for the model = .27). The perceived likelihood of the poor social studies student self did have a negative effect on self-regulation (beta = -.10), but this direct effect was only marginally significant.

Discussion

The results of our path analyses, as a whole, supported our theoretical model, although the patterns of effects varied slightly across the four subject domains. Possible selves whose salience was strong (i.e., which were high in the likelihood and instrumentality ratings) did indeed affect perceptions of competence. Hoped-for possible selves which were seen as high in likelihood were related to greater self-efficacy in mathematics, English, and science. Feared possible selves perceived as high in likelihood, on the other hand, were related to lower levels of self-efficacy across all four academic subject domains. One's sense of instrumentality for avoiding the "poor (subject domain) student" possible self predicted high levels of efficacy in English, science, and social studies. As expected, self-efficacy in a domain had the strongest effect on self-regulation; nevertheless, possible selves explained a unique portion of the variance in self-regulation above and beyond the effects of perceived competence. Our expectation that the value dimension would be most strongly related to self-regulation was partially supported; this proposition held true only for the mathematics and social studies domains, and only with regard to the importance of the positive possible self. Interestingly, the dimension that significantly predicted self-regulation in science and in English was one's sense of instrumentality for attaining the positive possible self. It appears that in these two domains, self-regulation is best predicted by a general sense of agency for attaining a desired goal (instrumentality dimension), and a specific sense of competence within a domain (self-efficacy).

Perceived competence, or self-efficacy, is thought to arise from various cues, including performance outcomes, attributions, situational circumstances, outcome patterns, models, and

characteristics of persuaders (Schunk, 1985). The data presented here suggest that possible selves are an additional source of self-efficacy. Possible selves can be seen as student characteristics, representing the personalized, cognitive-affective organizations of previous experiences and the acknowledgment of one's aptitudes. While the amount of variance in self-efficacy attributable to possible selves is modest, the fact that possible selves affect perceived competence measured three months later is noteworthy. The cues identified earlier may indeed bear greater influence in determining self-efficacy in a domain, but our results suggest that possible selves do have some bearing on perceptions of competence.

In the same vein, although self-efficacy in a domain was found to be the strongest predictor of self-regulation, we still found that the importance and instrumentality dimensions of possible selves had effects on self-regulatory strategies above and beyond the effects of self-efficacy. It is logical that self-efficacy in a domain would have these greater effects on behavior, since self-efficacy is more closely tied to performance. However, it is significant that possible selves exert unique effects upon self-regulation: in the event that self-efficacy in a domain is threatened (e.g., by negative feedback or unfavorable classroom factors), self-regulation need not decrease. That is, self-regulation may then be buffered, at least slightly, by valuing a possible self or by maintaining a more general sense of instrumentality (i.e., efficacy for attaining the positive possible self or for avoiding the negative possible self). We found that these effects varied by subject domain: the importance one attaches to attaining a positive self was related to greater self-regulation in the mathematics and social studies domains, and one's efficacy to attain positive self led to greater self-regulation in the English and science domains. This buffering effect can be interpreted as a corollary of the fact that possible selves help provide <u>new</u> incentives for the individual. By projecting oneself into the future, one need not be limited to what one is at the present: consider the existential nihilism of the belief "what I am now is all I can ever be" (Markus et al., 1990).

Differences in the content of self-schemas, as well as the differences in estimations of importance, efficacy, and likelihood seem to be a promising foundation from which to further explore the motivational components of learning. Students may carry the same self-schemas, but hold diverging beliefs regarding: the likelihood of attaining (or avoiding) that self; the importance of attaining (or avoiding) that self; and in the efficacy one feels for attaining (or avoiding) that self. If, as proposed, possible selves serve as personalized goals that one is motivated to approach or avoid (Garcia & Pintrich, 1994; Markus & Nurius, 1986), future research examining differences in goal-directed behavior by levels of perceived likelihood, importance, and efficacy is called for (cf. Garcia, 1993; Pintrich, Garcia, & De Groot, 1994). We speculated that these dimensions had divergent effects on expectancies and behavior, and as a whole, our data supported this proposition. Differing patterns of estimates of these dimensions may translate to affective consequences as well. High importance and low efficacy is a combination that may result in high levels of anxiety; low efficacy and high likelihood may lead to a sense of helplessness.

Future research on self-schemas should also consider measurement issues. What does it mean to have a self-schema? Research on self-concept has tended to confound academic self-conceptions with conceptions of abilities, or has relied upon standardized protocols which force the respondent to use an organization constructed by the researcher (Deutsch, Kroll, Weible, Letourneau, & Goss, 1988). That is, extremity has been confounded with descriptiveness; rating an item as "very much like me" or "definitely true of me" does not address the issue of salience. In other words, rating a descriptor as moderately true of oneself should not preclude having an elaborate structure of knowledge with regard to that descriptor. For example, a student may rate the "I am quite good at mathematics" item as moderately true, yet hold an elaborate and salient network of knowledge about himself in the mathematics domain (e.g., of himself with regard to different topics in mathematics, of the objective value of being proficient in mathematics, etc.). In addition, reactive measures are not based on the individual's own categorization or organization of self-knowledge, and willingness to endorse particular descriptors presented in a standardized questionnaire may not tap into what is truly important to the individual. Deutsch et al. suggest that an open-ended methodology is most appropriate for tapping into individuals' self-conceptions.

Our study here is certainly not exempt from these criticisms. However, since the majority the of work done on self-schemas (present and possible selves) has been based on adult subjects, the question regarding developmental differences does arise. Would an open-ended methodology be appropriate for younger subjects? We leave this issue to be addressed more systematically by future research. We did attempt this open-ended methodology when we piloted this study, and found difficulty using this format with young adolescents. At the early middle school age, a more structured format seemed more appropriate and easier for students to use. We offer the results here as an extension of the research done on present self-conceptions done by researchers such as Marsh and his colleagues (e.g., Marsh, 1992; Marsh, Byrne, & Shavelson, 1988); adolescents' future self-conceptions, despite the flaws in methodology identified by Deutsch and her colleagues, do appear to influence perceptions of competence and self-regulation.

There clearly remains a great deal of work to be done on self-schemas. We believe that the results presented in this paper have shed some light upon how possible selves impact upon expectancies and upon self-regulation. While the effects of possible selves are modest, they do indeed appear to have a function within the human motivational system. As goals to approach or to avoid, possible selves are manifestations of one's most intimate hopes and fears, whose effects on perceived competence and self-regulation are not inconsequential. The data presented here suggest that additional studies of the role of the possible selves in student learning and motivation would comprise a promising and exciting line of research.

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Table 1

Descriptive statistics

	Mean	Standard Deviation	Cronbach Alpha	Number of Items
Mathematics				
Likelihood of positive possible self	5.52	1.08	.67	2
Importance of attaining positive possible self	6.20	.96	.61	2
Efficacy for attaining positive possible self	6.08	1.17	.66	2
Likelihood of negative possible self	2.78	1.32	.64	3
Importance of avoiding negative possible self	4.89	1.83	.77	3
Efficacy for avoiding negative possible self	5.69	1.45	.77	3
Self-efficacy for mathematics	4.64	1.41	.87	6
Self-regulatory strategy use in mathematics	4.64	1.07	.70	9
English				
Likelihood of positive possible self	5.45	1.14	.71	2
Importance of attaining positive possible self	6.10	.97	.65	2
Efficacy for attaining positive possible self	6.03	1.19	.73	2
Likelihood of negative possible self	2.66	1.28	.73	3
Importance of avoiding negative possible self	4.73	1.85	.81	3
Efficacy for avoiding negative possible self	5.71	1.45	.87	3
Self-efficacy for English	5.05	1.15	.80	6
Self-regulatory strategy use in English	4.76	1.03	.71	9
Science				
Likelihood of positive possible self	5.47	1.14	.68	2
Importance of attaining positive possible self	6.10	1.04	.68	2
Efficacy for attaining positive possible self	6.04	1.17	.76	2
Likelihood of negative possible self	2.65	1.30	.71	3
Importance of avoiding negative possible self	4.77	1.85	.80	3
Efficacy for avoiding negative possible self	5.70	1.47	.85	3
Self-efficacy for science	5.37	1.12	.81	6
Self-regulatory strategy use in science	4.92	1.04	.70	9
Social Studies				
Likelihood of positive possible self	5.34	1.15	.75	2
Importance of attaining positive possible self	6.02	1.07	.75	2
Efficacy for attaining positive possible self	6.01	1.21	.72	2
Likelihood of negative possible self	2.76	1.35	.72	3
Importance of avoiding negative possible self	4.80	1.93	.79	3
Efficacy for avoiding negative possible self	5.76	1.45	.83	3
Self-efficacy for social studies	5.10	1.22	.83	6
Self-regulatory strategy use in social studies	4.87	.98	.66	9

Table 2

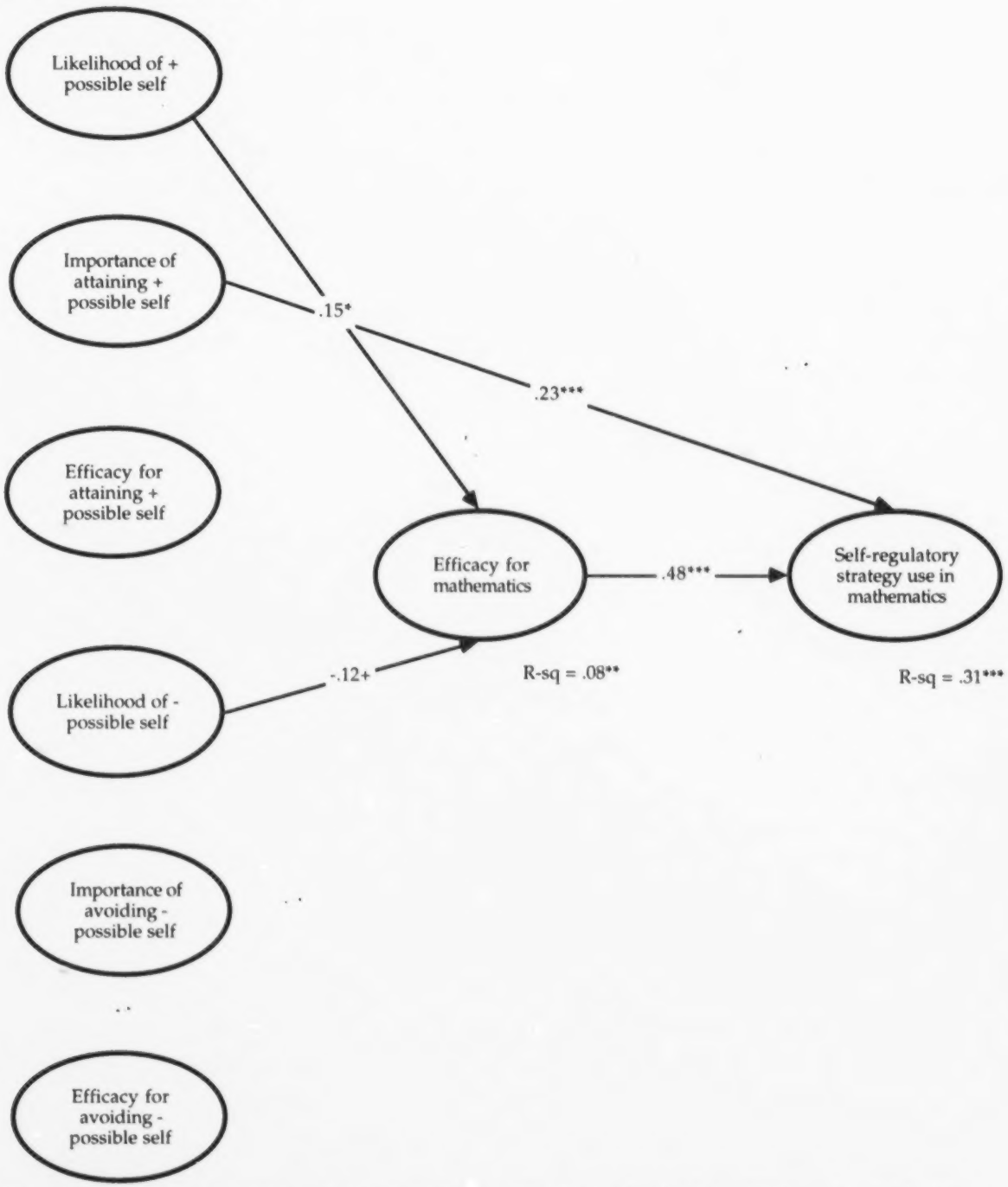
Correlations between constructs

	1	2	3	4	5	6	7	8
Mathematics								
1. Likelihood of positive possible self	--							
2. Importance of attaining positive possible self	.43	--						
3. Efficacy for attaining positive possible self	.32	.33	--					
4. Likelihood of negative possible self	-.37	-.16	-.24	--				
5. Importance of avoiding negative possible self	.04	.21	.09	.12	--			
6. Efficacy for avoiding negative possible self	.12	.23	.48	-.03	.44	--		
7. Self-efficacy for mathematics	.21	.14	-.01	-.18	-.04	-.10	--	
8. Self-regulatory strategy use in mathematics	.15	.29	.14	-.12	.02	.05	.50	--
English								
1. Likelihood of positive possible self	--							
2. Importance of attaining positive possible self	.45	--						
3. Efficacy for attaining positive possible self	.20	.27	--					
4. Likelihood of negative possible self	-.34	-.23	-.15	--				
5. Importance of avoiding negative possible self	.02	.19	.14	.16	--			
6. Efficacy for avoiding negative possible self	.11	.20	.55	-.02	.37	--		
7. Self-efficacy for English	.30	.21	.08	-.21	.00	.15	--	
8. Self-regulatory strategy use in English	.28	.26	.23	-.19	.12	.21	.52	--
Science								
1. Likelihood of positive possible self	--							
2. Importance of attaining positive possible self	.54	--						
3. Efficacy for attaining positive possible self	.38	.44	--					
4. Likelihood of negative possible self	-.37	-.26	-.22	--				
5. Importance of avoiding negative possible self	.03	.19	.18	.14	--			
6. Efficacy for avoiding negative possible self	.19	.29	.60	-.03	.40	--		
7. Self-efficacy for science	.25	.25	.14	-.24	-.01	.14	--	
8. Self-regulatory strategy use in science	.22	.25	.23	-.23	.02	.11	.50	--
Social Studies								
1. Likelihood of positive possible self	--							
2. Importance of attaining positive possible self	.52	--						
3. Efficacy for attaining positive possible self	.39	.42	--					
4. Likelihood of negative possible self	-.37	-.15	-.16	--				
5. Importance of avoiding negative possible self	-.01	.21	.21	.21	--			
6. Efficacy for avoiding negative possible self	.13	.22	.55	.00	.41	--		
7. Self-efficacy for social studies	.28	.27	.19	-.24	-.03	.19	--	
8. Self-regulatory strategy use in social studies	.22	.30	.22	-.22	.01	.17	.47	--

Note. Correlations between constructs within a domain are displayed. With a sample size of 287, a correlation whose absolute value is .12 or greater is significant at the .05 level.

Figure 1

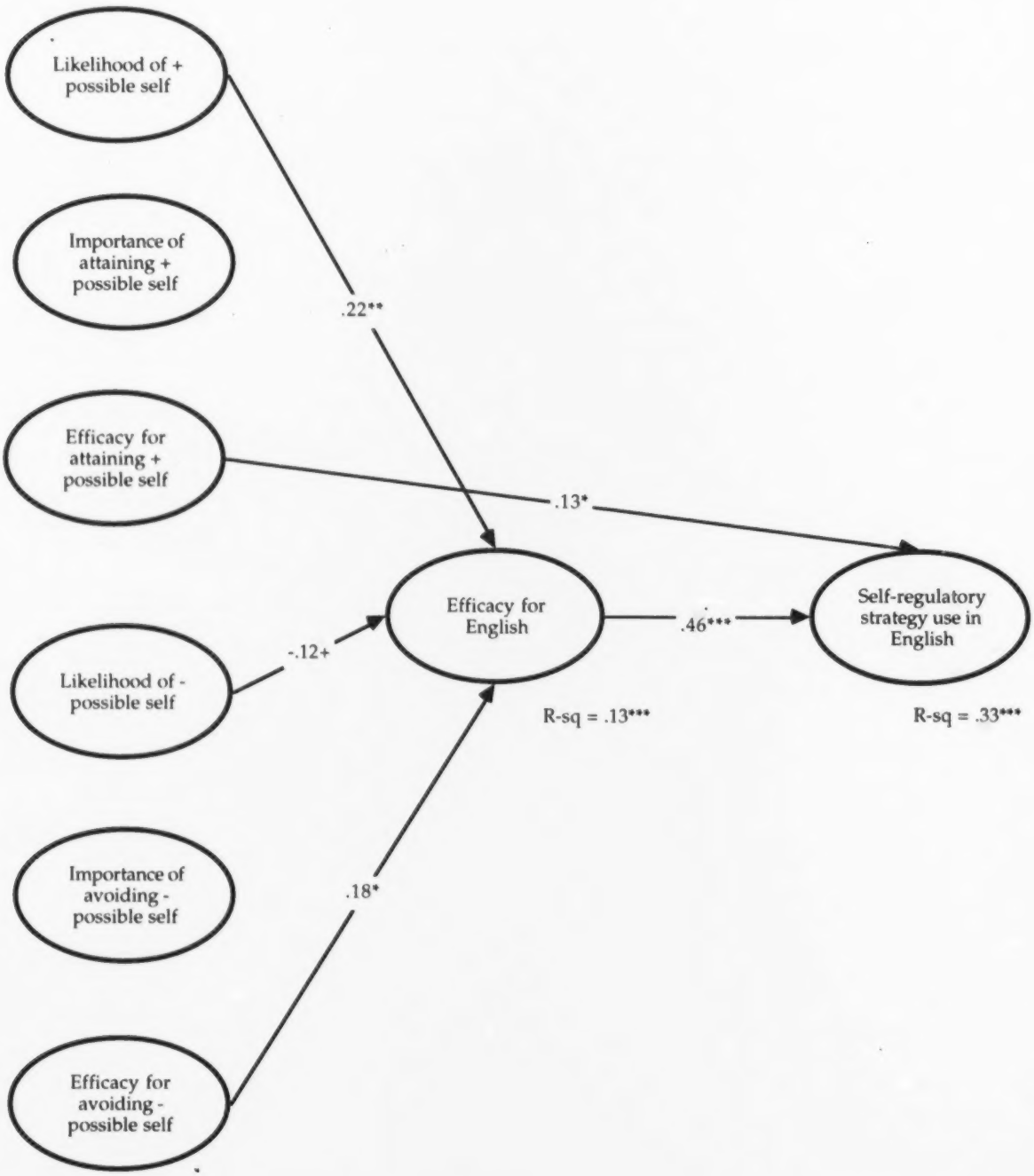
Path model for mathematics



Note. Standardized regression coefficients are shown. Significance levels are marked as: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Figure 2

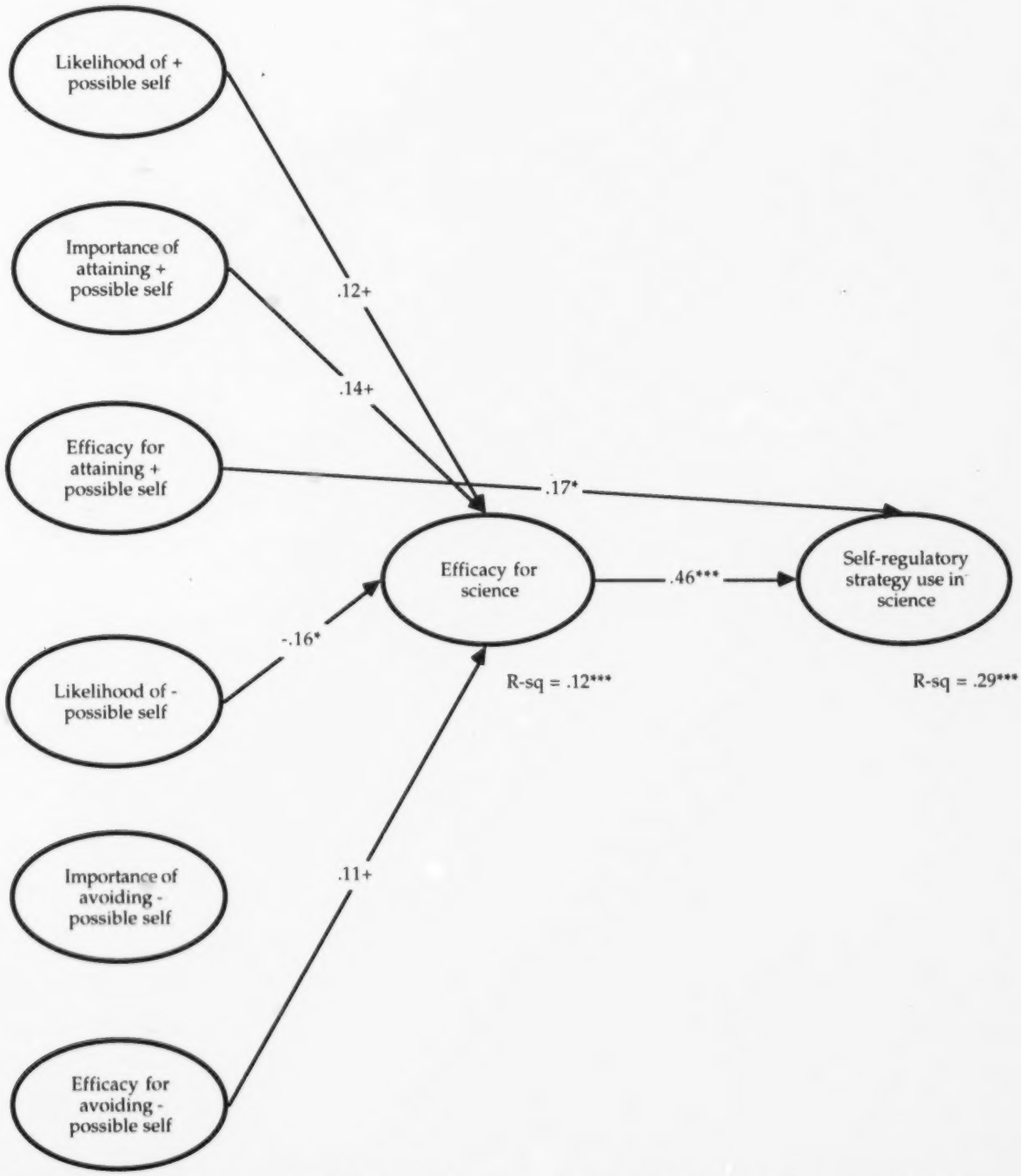
Path model for English



Note. Standardized regression coefficients are shown. Significance levels are marked as: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Figure 3

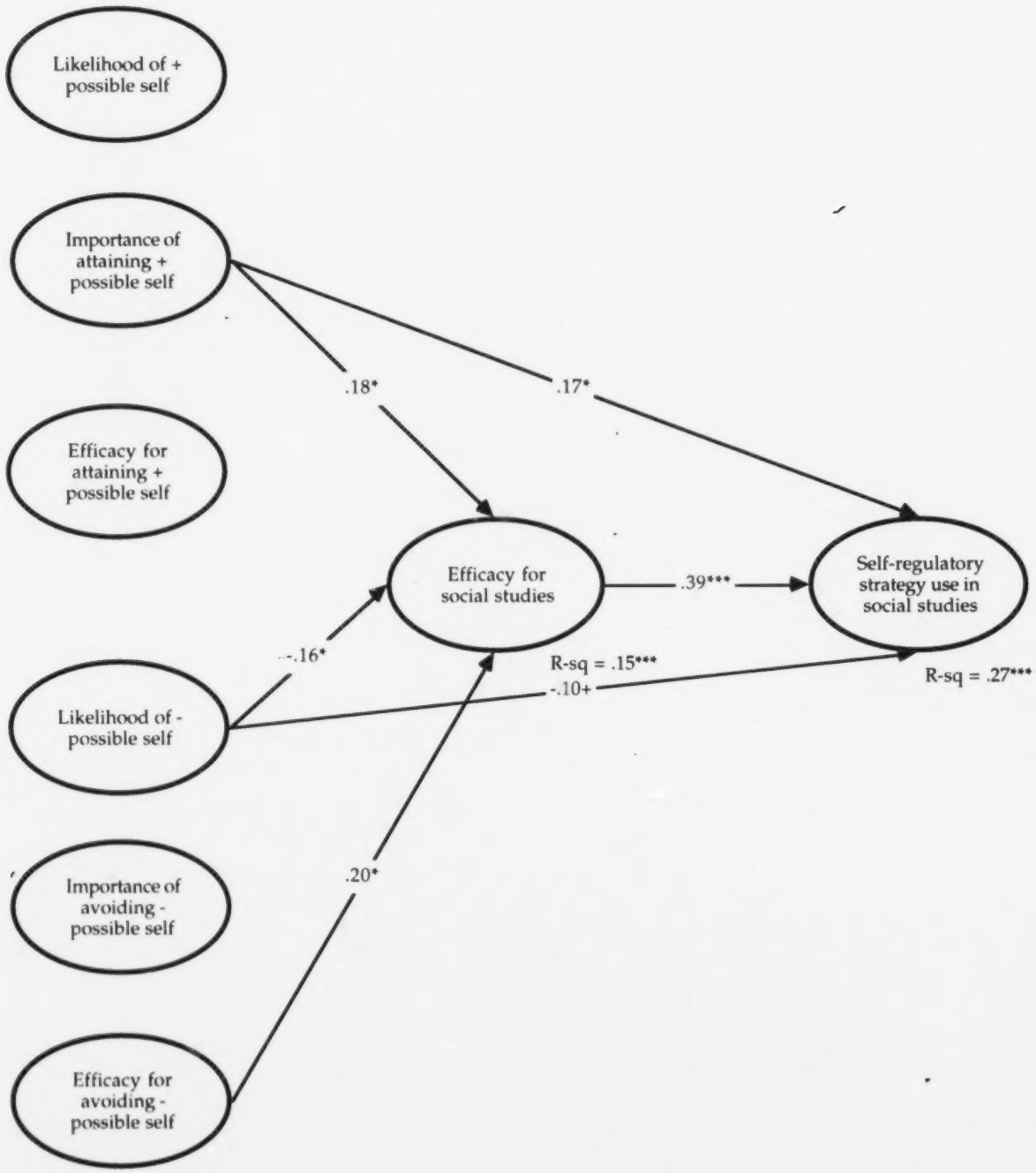
Path model for science



Note. Standardized regression coefficients are shown. Significance levels are marked as: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Figure 4

Path model for social studies



Note. Standardized regression coefficients are shown. Significance levels are marked as: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.